

# Recalibration of Generator for DSM2 Boundary EC at Martinez using PEST

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Delta Modeling, BDO, DWR

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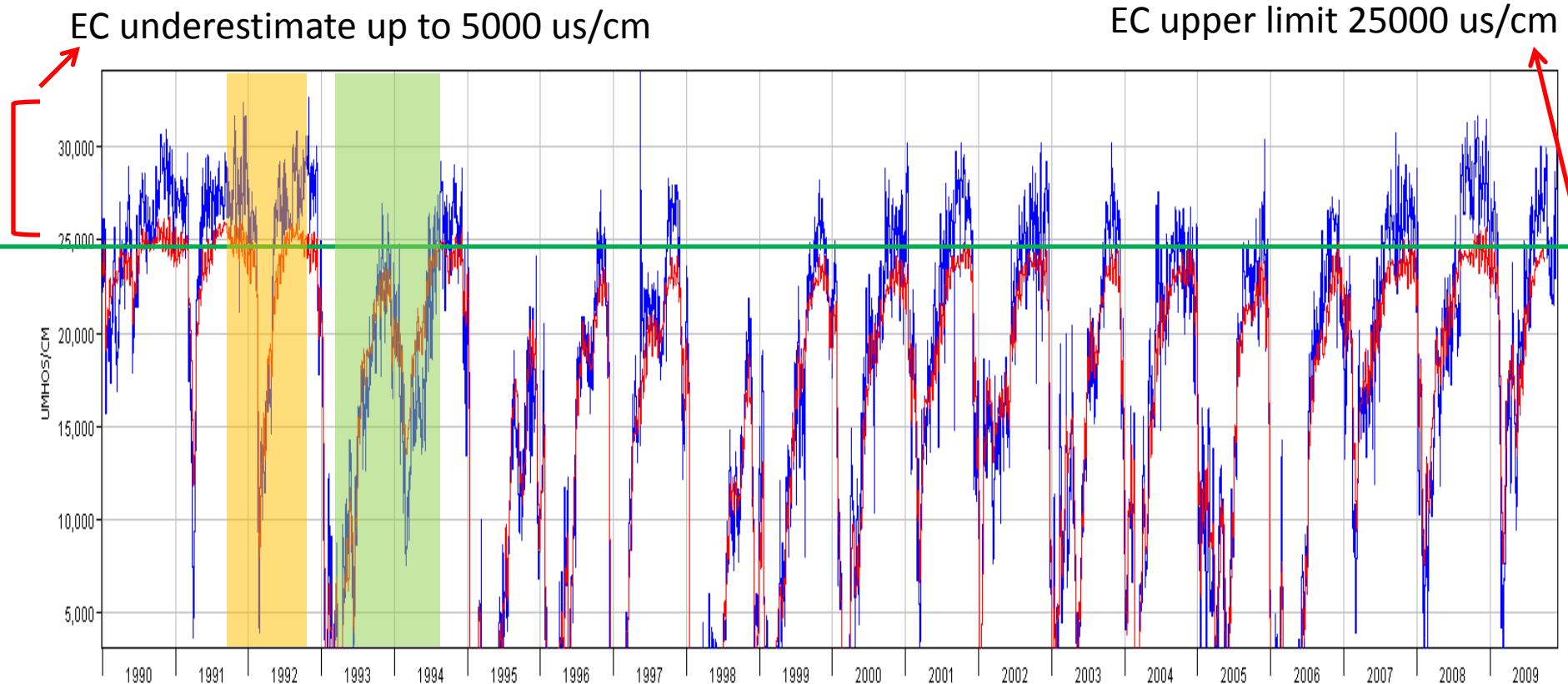
# Martinez EC Planning

- G-Model, Denton 1993
- Tide effect, Atelievich 2001
- Martinez EC <- Net Delta Outflow (antecedent history), stage (astronomical)

$$S(t) = (S_o - S_b) * \exp(-\alpha G^n(t)x(t)) + S_b$$

- Calib 1991/8-1992/9; valid 1993-1994
- Good fit for main trend, tidal envelope

# Compare Model to Historical



# PEST

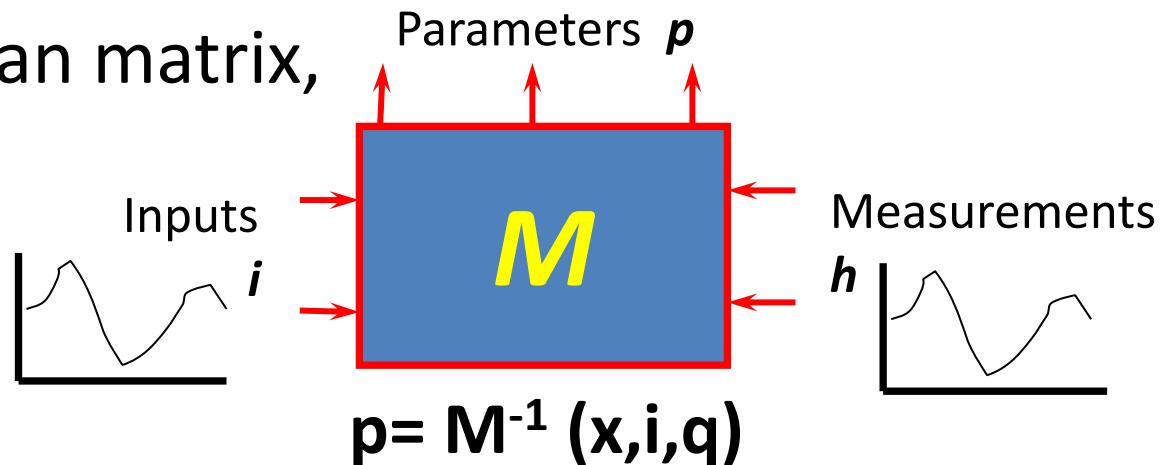
- Model-Independent Parameter Estimation
- Inverse problem
- Weighted least squares for non-linear problems

Objective func:  $\Phi = \sum (h_i - o_i)^2$

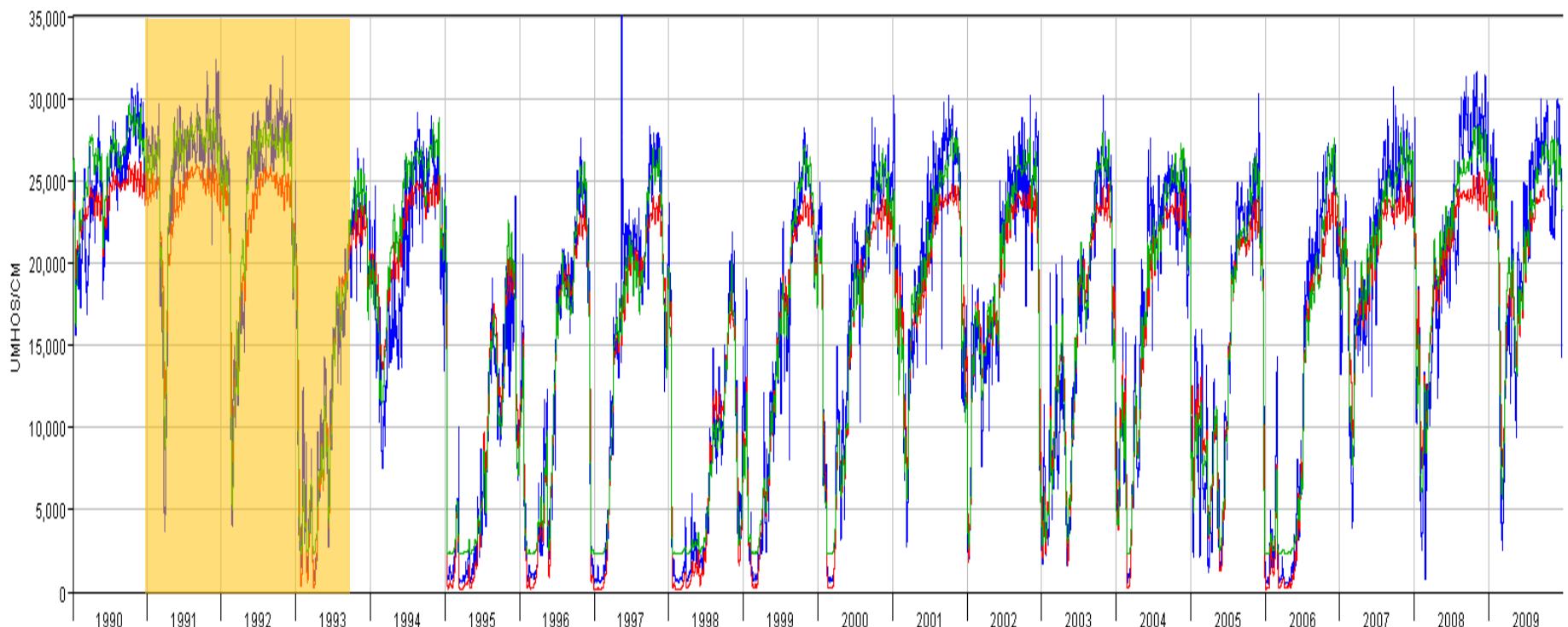
- Recursive, Jacobian matrix,  
finite difference

$$o - o_0 = J(p - p_0)$$

$$J_{i,j} = \partial o_i / \partial p_j$$



# New calibrated Results



Blue - hist; red - old calibrated model results; green - new calibrated model results

# Future Steps

- Historical stage calibration
- Inverse problem:
  - NDO calibrate, predict
  - Consumptive Use, SAC, SJR
- Real-time operation and water cost estimations